Space Weather Forecast

Issued on Sunday, 05 February 2023 at 13:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic Storm intervals days 2 and 3 (6th and 7th) (7 Feb).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with all sunspot regions on the visible disc relatively small and magnetically simple. There are presently five regions on the disc, with a new region developing in the southwest quadrant over the past 12 hours. No Earth-directed CMEs are thought to have occurred during the period.

Solar Wind / Geomagnetic Activity: Solar wind parameters were indicative of slow wind regime, with speeds ranging between 300 and 400 km/s. The total magnetic field strength was weak, with no significant fluctuations in the important north-south component. Resultant geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: No solar radiation storms were observed through the period.

Four-Day Space Weather Forecast Summary

Solar Activity: Low solar activity is expected, however there are signs that the arriving eastern solar horizon contains more potent active regions (from CME evidence, 'prominences' (arcs of plasma on the Sun's edge) and imagery), with a probable increase in activity therefore considered through the coming UTC working week, and thus an increasing chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs feature in the forecast at present. Slow solar winds are expected to become elevated on day 2 (6th) due to negative coronal hole influences. Predominantly Quiet geomagnetic activity is expected to become Unsettled to Active on day 2 (6th), with a chance of Minor Geomagnetic Storm intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Met Office

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	30	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	20	20	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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